Personality Type Factors of Faculty and Students Implications for Agricultural College Teaching

Leverne Barrett, Robert Sorensen, Ted Hartung

Agricultural college teachers are constantly in search of ways to improve the effectiveness of their teaching and increase student learning. Many of the strategies we hear about sometimes only superficially improve instruction. It was in that context that the Instructional Improvement Committee of the College of Agriculture at the University of Nebraska chose to investigate the improvement of instruction through personality preferences or type of its faculty and students.

A vast amount of literature has been published within the past 10 years suggesting that personality type has a significant impact on teaching style, learning style and occupational choice.

Researchers at the University of Nebraska, College of Agriculture, determined that the Myers-Briggs Type Indicator (MBTI) was the most appropriate instrument to use in their study. The MBTI was developed over a period of 20 years by Isabel Myers whose work paralleled that of the great Swiss scientist, Carl Jung.

Interpreting the Myers-Briggs Type Indicator requires a distinctive language. The MBTI identifies four individual preferences or strengths. These four preferences are selected from a set of eight variables; they are:

1. Extraversion (E) or Introversion (I): the direction of interest. Extraverts (E) are stimulated or get their course of energy from the outer world of people and things, whereas, Introverts (I) are energized by the inner world of thoughts and contemplation.

2. Sensing (S) or Intuition (N): how the mind receives information. Sensing (S) types gain information most keenly through the use of the five senses — sight, sound, touch, taste, smell. Intuitives (N) prefer to gain their information through a sixth sense or hunch.

3. Thinking (T) or Feeling (F): a preferred method of decision making. Thinkers (T) use a logical, impersonal approach to decision making, and Feeling (F) types use a more personal "from the heart" analysis to decide.

4. Judging (J) or Perceiving (P): a preference or style of living. Judging (J) types prefer an orderly, organized lifestyle; whereas, Perceptive (P) types prefer to experience life as it happens.

Barrett is associate professor of Agricultural Education, Sorensen is a professor of Agronomy and Hartung is Dean, College of Agriculture, Institute of Agriculture and Natural Resources, University of Nebraska Lincoln, NE 68583-0709.

The literature abounds with the implications of these eight preferences to the teaching and learning process.

McCaulley (1974) and Smith (1974) outlined some basic principles of personality type factors that are related to teaching and learning, on the extraversion/introversion dimension. They contend that Extraverts (E) learn best if the concept **follows** experience, and they prefer group learning and action projects. Introverts (I) will learn best if the concept **preceeds** experience, and they prefer individual learning to group learning environments.

Later that same year McCaulley (1974) observed that introverts (I) with intuition (N) are the most "academic" of the types. As introverts they are interested in concepts and ideas; as intuitives they may excel in theory, abstraction, and complexity. Extraverts (E) with sensing (S) are the most "pragmatic" of the types — interested in theory only if it has immediate application. McCaulley noted that since extraverts outnumber introverts and sensing types outnumber intuitives, schools may have a large number of students to teach whose best road to knowledge is through active experience, not second-hand reading of books.

Roberts and Lee (1977) confirmed McCaulley's general thesis in agricultural economics. They found that 78% of their student sample was sensing (S) type students, as contrasted with 55% of the agriculture economics faculty being intuitives (N). An overwhelming majority of the agriculture economics teachers (82%) were judging (J) types whereas less than one-half (42%) of the students were judging types. A high proportion of their teachers were thinking (T) types (82%) but only 64% of students were thinking types.

A study by Jones (1967) of faculty perceptions of university students found that: 1. a majority of faculty selected intuitive (N) and judging (J) type students to be their ideal students; 2. faculty members' own perference types differed significantly from the types of most of their students, and 3. faculty perception of the distribution of student types in their classes was inaccurate.

Hoffman and Betkouski (1981) reviewed the research on personality type as it affected teaching and learning, especially as it related to relationships of

student preferences with teaching styles. They noted that teachers typically assign students individual tasks with their own set of materials to be worked through in a quiet manner. Emphasis is placed on success in finding out the meaning of new concepts through symbols, and assessment is done through the use of paper and pencil tests. These teaching procedures strongly favor a student with a introverted (I) intuitive (N) orientation to the world. Lawrence (1982) echoed this belief by stating that "correcting the basis of instruction that harms extraverted (E) sensing (S) students is perhaps the most crucial unrecognized problem of American education."

With this type of information as a background, the research team at Nebraska set out to determine answers to several questions:

1. Are there any differences between the distribution of personality types in the general population and students majoring in the College of Agriculture. The general population data as described by Myers (1962) is: extraverts 75%, introverts 25%, sensing 75%, intuitive 25%, thinking 50%, feeling 50%, judging 50%, and perceiving 50%.

2. Do faculty personality types differ from student personality types? How does the agriculture faculty at UNL compare with other college faculties? Several studies such as that of Roberts and Lee (1977), and McCaulley (1981) found that the distribution of faculty personality type differed significantly from that of student types. College faculties tended to be more intuitive than their sensing students.

3. What is the relationship of students' sex to distribution? The general population suggests that 45%

Table 1. Distribution of Undergraduate Students and Faculty by MBTI Type and Sex in the College of Agriculture as Compared to the General Population.

MBTI Type	Student Percentage	Sex Ratio of Students Male:Female	Faculty Percentages	General Population Percentage
ESTJ	15%	8:1	11%	13%
ESTP	13%	12:1	1%	13%
ESFJ	6%	3:1	0%	13%
ESFP	2%	1:1	1%	13%
ENTJ	2%	1:1	6%	5%
ENTP	2%	7:1	3%	5%
ENFJ	1%	1:1	11%	5%
ENTP	4%	1:1	3%	5%
ISTJ	22%	9:1	23%	6%
ISTP	10%	9:1	1%	6%
ISFJ	8%	10:1	8%	6%
ISFP	6%	7:1	1%	6%
INTJ	1%	2:1	14%	1%
INTP	3%	13:1	3%	1%
INFJ	1%	1:1	10%	1%
INFP	2%	1:1	3%	1%

$^1x = 57.7$, Significant .0001
Faculty N = 71
Student N = 413

Table 2. Distribution of Undergraduate Students and Faculty by Components of Type [2]

	E	I	S	N	T	F	J	P
Students	46%	54%	84%	16%	69%	31%	57%	43%
Faculty	37%	63%	48%	52%	63%	27%	83%	17%
General Population	75%	25%	75%	25%	50%	50%	50%	50%

$^2x = 47.1$ Significant .0001

of females are T and 55% F, whereas males are 55% T and 45% F.

4. Is there a relationship between personality types and class attendance? Theory would suggest that J students would have a higher attendance rate than P students.

5. Does personality type affect students' grade point averages (GPA)? Studies by Myers (1962) using 12.225 students found that in the traditional classroom, introverts, intuitives and judging types had higher GPA's.

Methods

The Myers-Briggs Type Indicator (MBTI). Form G was completed by 406 students from four large classes in the College of Agriculture; three in the Department of Agronomy and one in the Department of Agricultural Engineering. Although three of these courses were freshman level and one was sophomore level, students from four class levels were present in all classes. There were approximately equal numbers of freshman, sophomore, and junior students with somewhat fewer seniors. The assessment was administered in regular lecture sections; therefore, information for all class members was not included in the tabulation due to absences.

Each student reported their sex, attendance record, and grade point average (GPA). Student attendance was classified as having attended: (1) more than 95%, (2) 80-95%, (3) 60-80%, and (4) less than 60% of the scheduled class sessions, on the average. Grade point averages were classified in ranges of 0.4 points beginning at 4.0 and progressing downward.

The MBTI type distribution was computed for each level of variables, attendance, and GPA. The Chi-square statistic was used to test for the presence of difference among the levels of each variable. A probability level of 10% was selected to indicate significance.

Results

The distribution of students in the sample by type and the expected distribution according to MBTI general population standards is shown in Table 1. Major discrepancies exist between this sample and the general population of numerous other studies by Myers (1962) for several distinct types. More of the following types were found than expected: ISTP, ISTJ, ISFJ and INTP; and fewer ESFJ, ESFP, ENTP, ENTJ and ENFJ

Table 3. Distribution of Undergraduate Students and Faculty by Temperment Groups[1]

	SP	SJ	NT	NF
Students	32%	51%	9%	8%
Faculty	6%	42%	25%	27%
General Population	38%	38%	12%	12%

[1]$x = 36.5$ Significant .0001

students. In general Table 2 shows proportionately more introverted, (54%), sensing (84%), thinking (69%) and judging (57%) students are enrolled at the University of Nebraska, College of Agriculture than extraverted (46%), intuitive (16%), feeling (31%), and perceptive (43%) students. The reasons for the differences are not attainable from this study, but a few of our samplings from rural populations suggests that introverted (I) sensing (S) types may be more numerous than would be expected in the general population.

Table 3 shows the distribution of students by Kiersey's (1978) temperment groups. The largest group was sensing judging (SJ-51%), followed in decending order by sensing perceiving (SP-32%), intuitive thinkers (NT-9%) and intuitive feeling (NF-8%). The last two groups of intuitive types were slightly less than the 24% found in the general population.

The ratio of number of men to number of women in the College of Agriculture was 4.4:1; in this sample the ratio was 5.8:1; a wide range of ratios existed for the sixteen MBTI types (M/F in Table 1). Proportionately more men of types ISTJ, ESTJ, ESTP, ISTP, ISFJ, and INTP are represented in the sample and proportionately more women of types ESFJ, ENFP, ESFP, INFP, INTJ, INFJ and ENFJ were found. In general, more thinking (T) type men and more feeling (F) type women were observed than would be expected, based on the ratio of numbers of men to numbers of women in the sample. Studies by Myers (1962) have shown that the percentages of thinking (T) type men and feeling (F) type women are somewhat different when in the general population, 55% F for females and 55% T for males. Two important points should be made. In no case did the number of women in a given type group exceed the number of men. Second, in a few cases, INTP, for example, only one or two women were identified with that type. Therefore, the ratio may change markedly with the addition or subtraction of only a few students.

The distribution of teaching faculty at UNL College of Agriculture is shown in Table 1 and 2. There were considerably more introverts and extraverts, 63% I to 37% E. The perception dimension of intuition and sensing had only a slight difference, 52% N to 48% S. The decision making dimension of thinking and feeling differed greatly, 62% T to 38% F. The greatest difference occurred in the lifestyle dimensions of judging

and perceiving, 83% J to 17% P. In descending order ISTJ, INTJ, ESTJ, ENFJ, INFJ, and ISFJ types represented the most common teachers. The types least represented in descending order were: INFP, INTP, ENFP, ENTP, ISTP, ISFP, ESTP, ESFP, and ESFJ. Listing teachers by temperament groups showed a different order: sensing judging, (SJ-42%), intuitive feelers, (NF-27%) intuitive thinkers, (NT-25%) and sensing perceiving, (SP-6%), (Table 3). These findings differ considerably from those of Myers for typical college faculties. The teaching faculty at UNL College of Agriculture had more sensing types than is usually found.

Although student and faculty groups differed considerably from their own "typical" peer groups, there were some similarities between students and faculty. The type groups of ESTJ and ISTJ had the greatest similarity. However, several types that represented a small distribution for faculty and students were also very similar: ESFP, ENTP, ISFJ, INTP, and INFP. Students were more heavily represented than faculty in ESTP, ESFJ, ISTP, and ISFP. The faculty had considerably more ENFJ, INTJ, and INFJ types than students.

It was hypothesized that the MBTI types of students would affect the frequency of class attendance. This was found to be true for the judging (J), perceiving (P) type. Data in Table 4 describes the observed and expected numbers of students in each attendance category by type. Substantially more J type students reported attendance rates of greater than 95% than did P type students. For attendance rates less than 95%, the number of P type students exceeded the number of J type students. Thus it is suspected that P students may be more likely to be absent from class than J students. The true effects are expected to be even greater than those reported here for two reasons. First, past experience has shown that students, on the average, report higher attendance rates than they exhibit. Second, there were students absent at the time the MBTI was administered. Since these absentees probably consisted to a large extent of students with characteristically poor attendance, greater affects may have been found had they been included in the sample.

Table 4. Relationship of MBTI Type (J-P) to Student Self-Reported Class Attendance[1]

	Judging (J)		Perceptive (P)	
Attendance	Observed	Expected	Observed	Expected
95%	176	157	100	118
80-95%	45	58	57	44
60-80%	6	9	10	7
60%	0	2	4	2

[1]$x = 19.85$, significant .001

According to many evaluators and most students, the most important measure of success in college is student grade point average (GPA). Chi-square analysis

Table 5. Relationship of MBTI Type (E-I) to Student Grade Point Average (GPA)[1]

GPA	Extravert (E) Observed	Expected	Introvert (I) Observed	Expected
4.0	1	3	6	4
3.6-4.0	10	14	21	17
3.2-3.6	31	37	49	43
2.8-3.2	60	55	59	64
2.4-2.8	40	37	40	43
2.0-2.4	24	20	20	24

[1] $x = 9.63$, Significant .10

indicated that only the E-I and J-P components of type were related to students' GPA values. Table 5 shows that introverted (I) students, in general, had higher averages than the extraverted (E) students. Similiarly, judging (J) students received higher grades than perceptive (P) students, Table 6. Again, the reasons for these differences cannot be explained from these data, but this behavior was found to be consistent with findings of Myers (1962).

Discussion

The findings of this study confirmed previous studies of personality type and student learning. However, until now little has been know about the personality type composition of students and faculty in colleges of agriculture. These findings may have major implications on the approaches used to improve teaching and learning for agriculture college students.

Results of this study confirmed to effective teachers what they already perceived: that students and teachers differ in the way they prefer to learn. However, until now they did not know why or how they differed, or they could not express their differences in a practical way.

This study showed that the student population had a much higher proportion of introverts, sensors, and judging types than the general college student population, and that faculty differed from the typical college faculty as described by Myers (1962). There were many more sensing type faculty than is typical in most universities.

The differences between distributions of type in students and faculty populations presents a challenge to teachers who are concerned about improving their instruction. The greater number of sensing type students in this sample suggests that those who major in agriculture may have a greater need to learn in an environment where the teaching material being presented is practical and useable for the present, and that they may have less need or desire for theory and future implications of subject matter.

These findings not only have implications for what is taught, but more importantly for HOW it is taught. Lawrence (1982) helped define this teaching-learning problem. He described sensing type students as linear learners (sequential, step-by-step) and intuitives as more global learners. The greatest problem may be

with intuitive teachers not aware of type differences: they may emphasize concepts, relationships, and the implications of facts for understanding larger problems rather than emphasizing practical applications. This may be at the expense of the sensing type student whose preference is for facts, practical information, and concrete skills.

Sensing students frequently comment that "I get my best grades in laboratory or field experience and do less well in lectures." Since the majority of the students are sensing types, agriculture college teachers need to increase "real-life experience" learning opportunities in their courses. Sensors learn best while actively engaged in "doing a thing." At this time their best learning style is used: touching, seeing, hearing, tasting and smelling. Many sensing students say that they chose to major in agriculture because it was the most practical of the majors.

We found in our study many sensing-perceiving (SP) students, the super realists. These students, more than any others, want action learning. Massive amounts of reading and homework is not motivating to them. We wonder if these students drop out of college early because their preferred learning environment is not to be found.

Our study revealed that personality type is related to students' GPA. Judging (J) students tended to have higher averages. There are several possible reasons for this difference. First, J type students like deadlines and plan their work toward those deadlines. Their general work pattern tends to be more narrow, focusing on fewer things at one time. P students do not like deadlines and tend to be doing many things at a time; thus they may not regiment themselves into strict study habits.

Introverted (I) students had higher GPA's than extraverts (E). There may be many reasons. One possibility is that I students have the ability to concentrate on one thing at a time with less distraction than E students who have many interests. Another reason may be that the agriculture college environment, at least in Nebraska, is more conducive to introverts who prefer working alone. Could it be that a predominance of I teachers whose learning styles may differ, discourages E students who like a more active learning environment?

Table 6. Relationship of MBTI Type (J-P) to Student Grade Point Average (GPA)[1]

GPA	Judging (J) Observed	Expected	Perceptive (P) Observed	Expected
4.0	6	4	1	3
3.6-4.0	22	18	9	13
3.2-3.6	53	45	27	35
2.8-3.2	70	68	49	51
2.4-2.8	34	45	46	35
2.0-2.4	20	25	44	19

[1] $x = 17.00$, Significant .001
N = 381

J students had better class attendance than P type students. The exact cause of this can not be gained from this study; however, preferences of lifestyle between J and P students as noted earlier could help explain this finding. P students may find highly structured classes of little appeal and choose not to attend as frequently. Out-of-class assignments and a wide variety of optional activities would be of more appeal to P students. More flexible deadlines on assignments would also be of help.

The type of faculty in this sample leads to some interesting speculation for teaching and learning. Will the higher number of sensing (S) type faculty increase the emphasis on a learning environment more conducive to sensing type students; or are these sensing faculty encultured into the intuitive methods of teaching? Is the distribution in this study similar to other agriculture college faculties?

It is apparent that personality type differences play a major role in teaching and learning. At several universities, colleges of agriculture are leading the instructional improvement movement. College instruction succeeds only as students are willing and able to learn. Every effort must be made to make learning as easy, comfortable, and productive as possible for every student.

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Involving Students In A Recruiting Process

Mary Taylor Haque

Many agricultural colleges around the United States are experiencing a decline in student enrollment, and as a result, efforts are now being made to actively recruit students.

Jenkinson (1) observed that "undergraduate enrollment in agriculture degree programs peaked in 1978 and 1979 following substantial growth in the early and mid-parts of the decade. In 1980, enrollment began to decline (5 percent) with a further decline of similar magnitude in 1981." He predicts "further declines over the next several years" and pointed out that "most faculties are now more active in student recruitment with the goal of at least slowing the projected decline and, hopefully, maintaining present enrollment levels."

With exactly that goal in mind, the Department of Horticulture at Clemson University initiated a student recruiting program in the fall of 1982. Working through a senior seminar course, the author involved undergraduate students in both the development and perpetuation of an ongoing recruiting program. The motivating goals behind developing this approach were 1) to maximize student learning through involvement, 2) to free faculty committees to pursue research, teaching, and extension duties, and 3) to save departmental spending on recruiting efforts.

Grabow (3), in his article "Resources for Teaching and Learning," discusses the "Eureka Effect," which is linked to curricula designed to require thought and creativity through student involvement. By proposing several project options, including recruiting, to a class, teachers can discover student aspirations in project areas for credit. The student who chose recruiting at Clemson was Danny Shook. As teacher of the seminar course, the author took the role of structuring, organizing, and guiding Danny in a way that encouraged thought, investigation, and creative problem solving. Together we outlined the following process for developing a recruiting program.

Possible target groups were identified first. High schools, vocational schools, two year colleges, continuing education sessions, and underclassmen already on campus without firm ideas about majors were all potential targets. Possible forums for reaching these groups were identified next. Assemblies, classes, club meetings, orientation, parents' day displays, and career day displays were considered.

After identifying potential target groups and forums, we decided to aim primarily at high school junior and senior classes and vocational schools. How

Haque is an associate professor of Horticulture at the College of Agricultural Sciences, Clemson University, Clemson, SC 29631.